

CLAIMS

1. An internal combustion engine with at least one piston reciprocating in a cylinder, comprising a piston ring region with at least one piston ring, with the piston comprising at least a first cavity for receiving gases passing at least one piston ring, with the piston ring region of the piston being connected via at least a first flow path with the first cavity, and with gases being removable from the first cavity via at least a second flow path, characterized in that the second flow path ends in an outlet opening in the region of the wall of the piston, with the outlet opening communicating in at least one piston position with an inlet opening in the cylinder wall, which inlet opening preferably leads to a collecting manifold in the cylinder housing.
2. An internal combustion engine, especially in accordance with claim 1, characterized in that the first cavity is configured as an annular space which is preferably adjacent to the piston ring region.
3. An internal combustion engine, especially in accordance with claim 1 or 2, characterized in that a non-return valve opening in the direction of the collecting manifold is arranged in the region of the inlet opening.
4. An internal combustion engine, especially in accordance with one of the claims 1 to 3, characterized in that the first cavity is flow-connected via at least one connecting manifold with a second cavity formed by a gudgeon pin of hollow configuration, with the gudgeon pin preferably being sealed off on the face side by at least one cover.
5. An internal combustion engine, especially in accordance with one of the claims 1 to 4, characterized in that the second flow path ends in the region of the piston skirt of the piston.
6. An internal combustion engine, especially in accordance with one of the claims 1 to 5, characterized in that the first manifold originates from the piston ring region of at least one piston ring configured as a compression ring.

7. An internal combustion engine, especially in accordance with one of the claims 1 to 6, characterized in that the first and/or second flow path is formed by at least one manifold formed into the piston.
8. An internal combustion engine, especially in accordance with one of the claims 1 to 7, characterized in that the second flow path is formed by the gudgeon pin with hollow configuration.
9. An internal combustion engine, especially in accordance with claims 8, characterized in that the outlet opening is formed by an open face side of the gudgeon pin.
10. An internal combustion engine, especially in accordance with one of the claims 1 to 9, in which preferably two pistons are arranged oscillating in opposite directions, characterized in that in a region associated with one of the upper dead center positions of the piston a substantially cylindrical fire ring is arranged in the cylinder, with the inside diameter of the fire ring being preferably smaller than the diameter of the cylinder.
11. An internal combustion engine, especially in accordance with one of the claims 1 to 10, characterized in that the fire ring is inserted into an annular recess of the cylinder jacket of the cylinder, which recess is formed by a relief.
12. An internal combustion engine, especially in accordance with one of the claims 1 to 11, characterized in that the fire ring is provided with a slotted configuration.
13. An internal combustion engine, especially in accordance with one of the claims 1 to 12, characterized in that the slot of the fire ring is configured in an oblique manner relative to the cylinder axis.
14. An internal combustion engine, especially in accordance with one of the claims 1 to 13, characterized in that the fire ring is arranged in a anti-twisting manner in the cylinder, with the fire ring preferably being held by an anti-twist device.

15. An internal combustion engine, especially in accordance with one of the claims 1 to 14, characterized in that the anti-twist device of the fire ring is formed by a screw or pin preferably engaging in the slot and inserted into the cylinder.
16. An internal combustion engine, especially in accordance with one of the claims 1 to 15, characterized in that the anti-twist device fully fills the width of the slot at at least one point.
17. An internal combustion engine, especially in accordance with one of the claims 1 to 16, characterized in that the cylinder is formed by a cylinder liner.
18. An internal combustion engine, especially in accordance with one of the claims 1 to 17, characterized in that the fire ring comprises at least one pass-through opening for a component opening into the combustion chamber, with the component preferably being an injection nozzle, a pre-chamber nozzle or a spark plug.